

01-17-08

PTO/SB/17 (10-03)

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FEE TRANSMITTAL for FY 2008

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant Claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$510.00)

Complete if Known

Application Number	10/649,347
Filing Date	August 27, 2003
First Named Inventor	REZNEK et al.
Examiner Name	Lyle Alexander
Art Unit	1743
Attorney Docket No.	CBK03072 (3600-374-22)

METHOD OF PAYMENT (check all that apply)☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None☒ Deposit AccountDeposit Account Number
Deposit Account Name

03-0060

Cabot Corporation

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments☒ Charge any additional fee(s) or any underpayment of fee(s)☐ Charge fee(s) indicated below, except for the filing fee

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FEE CALCULATION**1. BASIC FILING FEE**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1011	310	2011	155	Utility filing fee	
1012	210	2012	105	Design filing fee	
1013	210	2013	105	Plant filing fee	
1014	310	2014	155	Reissue filing fee	
1005	210	2005	105	Provisional filing fee	

SUBTOTAL (1) (\$0.00)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims		Extra Claims		Fee from below		Fee Paid
Independent	Claims	-20**=	X			
		-3**=	X			
Multiple Dependent						

Large Entity		Small Entity		Fee Description
Fee Code	Fee (\$)	Fee Code	Fee (\$)	
1202	50	2202	25	Claims in excess of 20
1201	210	2201	105	Independent claims in excess of 3
1203	370	2203	185	Multiple dependent claim, if not paid
1204	210	2204	105	**Reissue independent claims over original patent
1205	50	2205	25	**Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$0.00)

** or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)**3. ADDITIONAL FEES**

Large Entity		Small Entity		Fee Description	Fee Paid
Fee Code	Fee (\$)	Fee Code	Fee (\$)		
1051	130	2051	65	Surcharge - late filing fee or oath	
1052	50	2052	25	Surcharge - late provisional filing fee or cover sheet	
1053	130	1053	130	Non-English specification	
1812	2,520	1812	2,520	For filing a request for <i>ex parte</i> reexamination	
1804	920*	1804	920*	Requesting publication of SIR prior to Examiner action	
1805	1,840*	1805	1,840*	Requesting publication of SIR after Examiner action	
1251	120	2251	60	Extension for reply within first month	
1252	460	2252	230	Extension for reply within second month	
1253	1050	2253	525	Extension for reply within third month	
1254	1640	2254	820	Extension for reply within fourth month	
1255	2,230	2255	1,115	Extension for reply within fifth month	
1401	510	2401	255	Notice of Appeal	
1402	510	2402	255	Filing a brief in support of an appeal	510.00
1403	1,030	2403	515	Request for oral hearing	
1451	1,510	1451	1,510	Petition to institute a public use proceeding	
1452	510	2452	255	Petition to revive - unavoidable	
1453	1,540	2453	770	Petition to revive - unintentional	
1501	1,440	2501	720	Utility issue fee (or reissue)	
1502	820	2502	410	Design issue fee	
1503	1,130	2503	565	Plant issue fee	
1464	130	1460	130	Petitions to the Commissioner	
1807	50	1807	50	Processing fee for provisional applications	
1806	180	1806	180	Submission of Information Disclosure Stmt	
8021	40	8021	40	Recording each patent assignment per property (times number of properties)	
1809	810	2809	405	Filing a submission after final rejection (37 CFR 1.129(a))	
1810	810	2810	405	For each additional invention to be examined (37 CFR 1.129(b))	
1801	810	2801	405	Request for Continued Examination (RCE)	
1802	900	1802	900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$510.00)

SUBMITTED BY**Complete (if applicable)**

Name (Print/Type)	Luke A. Kilyk	Registration No. (Attorney/Agent)	33,251	Telephone	1-540-428-1701
Signature		Date	January 16, 2008		

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This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450. If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Kim Blum
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Signature



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Kim Blum
Name (Print)

Kim Blum
Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: REZNEK et al.)	Examiner:	Lyle Alexander
)		
Application Number: 10/649,347)	Group Art Unit:	1743
)		
Filed: August 27, 2003)	Confirmation No.:	4170
)		
Docket No.: CBK03072 (3600-374-22))		

For: METHODS OF PROVIDING PRODUCT CONSISTENCY

SUBMISSION OF APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

January 16, 2008

Sir:

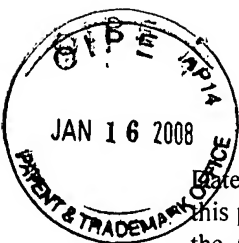
Submitted herewith is an Appeal Brief in the above-identified U.S. patent application.

Please charge the amount of \$510.00 to Deposit Account No. 03-0060. In the event that any additional fees are due in connection with this paper, please charge such fees to Deposit Account No. 03-0060.

Respectfully submitted,

Luke A. Kilyk
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Reg. No. 33,251

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Kim Blum

Name (Print)

Signature

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: REZNEK et al.)	Examiner:	Lyle Alexander
)		
Application Number: 10/649,347)	Group Art Unit:	1743
)		
Filed: August 27, 2003)	Confirmation No.:	4170
)		
Docket No.: CBK03072 (3600-374-22))		

For: METHODS OF PROVIDING PRODUCT CONSISTENCY

APPEAL BRIEF
UNDER 37 C.F.R. § 41

Mail Stop **Appeal Brief — Patents**
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

(1) Identification

The appellants, application, and the Examiner's identification data associated with this paper are provided in the above-captioned heading.

The appellants hereby file an Appeal Brief under 37 C.F.R. § 41.37, together with the applicable fee under 37 C.F.R. § 41.20(b)(2).

A Notice of Appeal under 37 C.F.R. § 41.31 was previously filed with the applicable fee under § 41.20(b)(1) on November 16, 2007.

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(2) **Table of Contents**

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U.S. Patent Application No. 10/649,347
Appeal Brief of January 16, 2008

(3) Real Party in Interest

The real party in interest in this case is *Cabot Corporation*, the assignee of record.

(4) Related Appeals and Interferences

The appellants are not aware of any other appeals or interferences that will directly affect, be directly affected by, or have a bearing on the Board's decision in the present appeal.

(5) Status of Claims

No Claims are canceled.

Claims 1-29 are rejected.

Claims 30-53 are withdrawn.

Claims 1-29 are on appeal.

(6) Status of Amendments

No amendment was filed subsequent to the final Office Action dated July 17, 2007.

(7) Summary of Claimed Subject Matter

I. Concise Explanation of the Subject Matter Defined in Independent Claims and Separately Argued Dependent Claims

a) Independent Claim 1

Independent claim 1 is directed to a method of providing product consistency (§ [0008]: page 2, line 25), comprising the steps of:

- a) maintaining at least one morphological value of a particulate material within a first target range (§ [0008]: page 2, line 26 to page 3, line 1; § [0057], page 20, lines 10-12, 16-18) and
- b) maintaining at least one interfacial potential property value of the particulate material within a second target range (§ [0008]: page 3, lines 1-2; § [0057], page 20, lines 10-12, 16-18).

The present application provides definitions for the claim terms “maintaining” (§ [0018]: page 5, lines 17-22), and “interfacial potential property value” (§ [0041]: page 15, lines 1-2; § [0024]: page 8, line 26 to page 9, line 3).

b) Dependent Claim 14

Dependent claim 14, which depends from claim 1, further specifies that the step of maintaining at least one interfacial potential property value of a particulate material (§ [0008]: page 3, lines 6-7), comprises

- i) determining at least one interfacial property value of the particulate material (§ [0008]: page 3, lines 7-8; § [0057], page 20, lines 13-14); and
- ii) adjusting at least one process variable of a process for producing the particulate material, wherein the adjustment maintains the interfacial potential property value within the second target range (§ [0008]: page 3, lines 8-11; § [0056], page 19, lines 28-29; § [0057], page 20,

lines 15-16, 20-21).

c) Dependent Claim 15

Dependent claim 15, which depends from claim 14, further specifies that the interfacial potential property value is determined *during* the process for producing the particulate material (¶ [0011]: page 4, lines 3-5; ¶ [0020]: page 6, lines 15-18; ¶ [0057], page 20, lines 18-19).

d) Dependent Claim 16

Dependent claim 16, which depends from claim 14, further specifies that the interfacial potential property value is determined prior to shipping the particulate material to a customer (¶ [0012]: page 4, lines 6-8; ¶ [0020]: page 6, lines 7-10; ¶ [0057], page 20, lines 21-22).

e) Dependent Claim 21

Dependent claim 21, which depends from claim 14, further specifies that the interfacial potential property value is determined by an interfacial potential absorptometry method (¶ [0046]: page 16, line 21 to page 17, line 9; ¶ [0064], page 22, lines 14-21; ¶ [0067], page 23, lines 6-13; ¶ [0072], page 24, line 30 to page 25, line 8).

f) Dependent Claim 24

Dependent claim 24, which depends from claim 14, further specifies that the interfacial potential property value is determined by a wicking rate method (¶ [0048], page 17, lines 10-17; ¶ [0069], page 23, line 23 to page 24, line 8).

g) Dependent Claim 25

Dependent claim 25, which depends from claim 14, further specifies that the interfacial potential property value is determined by a yield point method (¶ [0049], page 17, lines 18-26).

h) Dependent Claim 26

Dependent claim 26, which depends from claim 14, further specifies that the interfacial

potential property value is determined by a interfacial potential vapor adsorption method (§ [0043], page 15, lines 17-29; § [0053], page 18, lines 17-27).

i) Dependent Claim 27

Dependent claim 27, which depends from claim 14, further specifies that the interfacial potential property value is determined by an IGC method (§ [0052], page 18, lines 9-16).

j) Independent Claim 28

Independent claim 28 recites a method of controlling a process for producing a particulate material (§ [0009], page 3, lines 12-13), comprising the steps of:

- a) determining at least one morphological value of the particulate material and at least one interfacial potential property value of the particulate material (§ [0009], page 3, lines 13-15; § [0057], page 20, lines 13-14);
- b) comparing the morphological value and the interfacial property value of the particulate material to a target morphological value and a target interfacial potential property value (§ [0009], page 3, lines 15-17; § [0057], page 20, lines 19-21); and
- c) if necessary, adjusting at least one process variable for the process (§ [0009], page 3, lines 17-18; § [0057], page 20, lines 15-16, 20-21).

k) Dependent Claim 29

Claim 29, which depends from claim 28, further specifies that the process variable is correlated to the interfacial potential property value (§ [0057], page 20, lines 15-18; § [0058], page 20, lines 23-29).

(8) Grounds of Rejection to be Reviewed on Appeal

1) Whether claims 1-29 are unpatentable under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

2) Whether claims 1-29 are unpatentable under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,974,167 to Reszler.

(9) Argument

1. Rejection Of Claims 1-29 under 35 U.S.C. §112, second paragraph, for Indefiniteness.

Claim 1

Claims 1-29 were finally rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner's Position

According to the Final Office Action dated July 17, 2007 (page 4), claims 1-29 are indefinite for the following reasons:

The preamble of the claims are directed to “.... providing product consistency...” and a method of “... controlling a process...”. However, the bodies of the claims fail to teach any measuring steps where the consistency and control processes are performed. For purposes of examination, the claims are best understood as methods of measuring the claimed parameters and controlling the process to maintain the desired parameters.

These claims are also vague and indefinite regarding what is intended by “interfacial potential.” This value is not defined in the claims and one having ordinary skill in the art would not be able to determine the claimed interfacial potential value.

The Examiner also added the following remarks in the Final Office Action (page 5) in support of this indefiniteness rejection:

Applicants traverses the 35 USC 112 second paragraph rejections stating one having ordinary skill in the art would understand the terms. Further, Applicants state they can be their own lexicographer and the terms in question are clearly described in the specification.

The Office has read the selection of the specification cited by Applicants and maintains these terms are not defined in a clear and unambiguous manner that would permit one having ordinary skill in the art to make and/or use the invention.

The Appellants' Position

Appellants respectfully submit that claim 1 on appeal defines the subject matter which they regard as their invention with a reasonable degree of particularity and distinctness whereby the metes and bounds of the subject matter that would be protected by the patent grant can be ascertained (see, *e.g.*, M.P.E.P. § 2173.02).

In particular, the Appellants submit that claim 1 on appeal is not indefinite when the claim terms recited therein, including “maintaining” and “interfacial potential property value,” are properly interpreted in view of the present application. The Final Office Action (page 5) does not accept the special definitions that the Appellants have provided in their specification for these claim terms. However, the Appellants are free to be their own lexicographers with respect to these and other claim terms. The Appellants’ meanings provided for any claim terms should be applied to properly determine the scope and subject matter of the claims. The Manual of Patent Examining Procedure (8th Ed., Rev. 9/2007) makes this clear, such as expressed in the following reproduced excerpts thereof:

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification.
[M.P.E.P. § 2173.01]

... ..

When the specification states the meaning that a term in the claim is intended to have, the claim is examined using that meaning, in order to achieve a complete exploration of the applicant's invention and its relation to the prior art. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989).
[M.P.E.P. § 2173.05(a), I]

Present claim 1 recites, *inter alia*, a method of providing product consistency including two recited steps in the claim body that involve

(a) maintaining at least one morphological value of a particulate material within a first target range, and

(b) maintaining at least one interfacial potential property value of the particulate material within a second target range (emphasis added).

In the present application, (¶ [0018]: page 5, lines 17-22), Appellants have explicitly defined the claim term “maintaining” as follows:

As used herein, “maintaining” can include measuring or analyzing for the stated property and determining whether that value falls within the desired target ranges. If it does, the value is said to be within specifications and is therefore maintained. If it does not, in order to keep the value maintained, some change is made in the process used to prepare the particulate material such that the value is brought back within range. In this way, the method of the present invention provides for product consistency by utilizing a system consisting of sampling, testing, comparison, selection, and optional process adjustment so that the product performs substantially the same.

Further, the present application teaches examples of process variables that can be used to adjust the property in order to “maintain” if a change is detected. See ¶ [0058], page 20, lines 23-30, e.g., “For examples, adjustable process variable for a particulate material comprising carbonaceous material and, in particular, carbon black include, but are not limited to combustion stoichiometry, reactor quench length, feedstock composition, primary fuel type, level of downstream additive (including oxidants and chemical reagents), and post treatment conditions.” Therefore, when claim 1 is properly read in light of the Appellants’ own specification disclosure, one of ordinary skill in the art would reasonably understand that the body of claim 1 *does* teach measuring steps where the

consistency and control process are performed, through the clear and unambiguous specific definition provided for the term “maintaining” in the present application.

Similarly, the claim terminology “interfacial potential property value” is also defined in the claims in light of the clear and unambiguous definition provided for this terminology in the present application. This clear definition does allow one of ordinary skill in the art to determine the claimed interfacial potential property value.

In the present application (§ [0041]: page 15, lines 1-2), the term “interfacial potential property value” is defined as a follows:

As described above, the interfacial potential property value may be any property that can be correlated to the interfacial potential of the particulate material.

In this respect, the present application defines “interfacial potential” as follows (§[0024]):
page 8, line 26 to page 9, line 3):

The interfacial potential of a particulate material is defined through a measure of a physical phenomenon that depends on the interaction of particulate material with other materials or with itself, after the effects of morphology have been removed. When two particles are in contact with each other the interfacial potential is the cohesion per unit area of contact. When particulate material is mixed into a fluid, the interfacial potential is the adhesion per unit area of the particle. If the measurement is per unit mass then the total interaction depends on the surface area per unit mass and the interfacial potential per unit area.

Further regarding the “interfacial potential property value” and its determination in the method of the present claim 1, the present application provides specific guidance on what is meant in paragraphs [0041]-[0055], and includes working examples showing how to measure and apply this property value in the practice of the present invention, such as described in paragraphs [0062], [0065], [0067], and [0069].

When claim 1 is properly read in light of the Appellants' own corresponding application disclosure, one of ordinary skill in the art would reasonably understand that the claim *does* provide a clear and unambiguous definition for the term "interfacial potential property value," and further that one having ordinary skill in the art would be able to determine its value for purposes of practicing the present invention. Again, the present application states the meaning that this term in the claim is intended to have, and the claim should be examined using that meaning. *In re Zletz*, 893 F.2d 319, 13 USPQ2d 1320 (Fed. Cir. 1989). Therefore, claim 1 is not vague and indefinite as to what is intended by "interfacial potential property value," contrary to the assertion made in the Final Office Action (page 4).

It is also respectfully submitted that the appropriate standard under 35 § U.S.C. 112, *second* paragraph, is not whether the claimed subject matter would permit one having ordinary skill in the art to make and/or use the invention, contrary to the Examiner's position taken in the Final Office Action (page 5). In any event, the present application also provides an adequate enablement for one having ordinary skill in the art to make and/or use the invention as recited in claim 1 on appeal (see, *e.g.*, ¶¶ [0021], [0041]-[0074]).

In view of the above reasons, reversal of the rejection of claim 1 for indefiniteness is respectfully requested.

The Examiner's final rejection made under 35 U.S.C. § 112, second paragraph, did not set forth any separate bases for rejecting any individual ones of claims 1-29 under this section of the Statute. Therefore, the Appellants submit that each of claims 1-29 comply with 35 U.S.C. § 112, second paragraph, for at least the same reasons as explained above relative to claim 1.

The Appellants also submit that claims 2-29 on appeal set forth additional features which further describe and define embodiments of the present invention in compliance with 35 U.S.C. § 112, second paragraph. A number of these claims are specifically discussed below in this regard.

Claim 14

Claim 14 further recites that the step of maintaining at least one interfacial potential property value comprises i) determining at least one interfacial property value of the particulate material; and ii) adjusting at least one process variable of a process for producing the particulate material, wherein the adjustment maintains the interfacial potential property value within the second target range.

The Final Office Action does not provide a specific position on how and why claim 14 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 14 clearly provides even further meaningful features on measuring steps where the consistency and control processes are performed. Claim 14 defines the subject matter of the claimed invention with a reasonable degree of particularity and distinctness whereby the metes and bounds of the subject matter that would be protected by the patent grant can be readily ascertained.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 14 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 14 for indefiniteness is respectfully requested.

Claim 15

Claim 15, which depends from claim 14, further specifies that the interfacial potential property value is determined *during* the process for producing the particulate material. The Final Office Action does not provide a specific position on how and why claim 15 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 15 clearly provides even further meaningful features on measuring steps where the consistency and control processes are performed.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 15 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 15 for indefiniteness is respectfully requested.

Claim 16

Dependent claim 16, which depends from claim 14, further specifies that the interfacial potential property value is determined prior to shipping the particulate material to a customer.

The Final Office Action does not provide a specific position on how and why claim 16 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 16 clearly provides even further meaningful features on

measuring steps where the consistency and control processes are performed.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 16 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 16 for indefiniteness is respectfully requested.

Claim 21

Dependent claim 21, which depends from claim 14, further specifies that the interfacial potential property value is determined by an interfacial potential absorptometry method.

The Final Office Action does not provide a specific position on how and why claim 21 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 21 clearly provides even further meaningful features on how the interfacial potential property value is determined.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 21 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 21 for indefiniteness is respectfully requested.

Claim 24

Dependent claim 24, which depends from claim 14, further specifies that the interfacial potential property value is determined by a wicking rate method.

The Final Office Action does not provide a specific position on how and why claim 24 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 24 clearly provides even further meaningful features on how the interfacial potential property value is determined.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 24 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 24 for indefiniteness is respectfully requested.

Claim 25

Dependent claim 25, which depends from claim 14, further specifies that the interfacial potential property value is determined by a yield point method.

The Final Office Action does not provide a specific position on how and why claim 25 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 25 clearly provides even further meaningful features on how the

interfacial potential property value is determined.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 25 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 25 for indefiniteness is respectfully requested.

Claim 26

Dependent claim 26, which depends from claim 14, further specifies that the interfacial potential property value is determined by an interfacial potential vapor adsorption method.

The Final Office Action does not provide a specific position on how and why claim 26 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 26 clearly provides even further meaningful features on how the interfacial potential property value is determined.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 26 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 26 for indefiniteness is respectfully requested.

Claim 27

Dependent claim 27, which depends from claim 14, further specifies that the interfacial potential property value is determined by an IGC method.

The Final Office Action does not provide a specific position on how and why claim 27 fails to comply with 35 U.S.C. § 112, second paragraph. Although not separately addressed in the Final Office Action, the body of claim 27 clearly provides even further meaningful features on how the interfacial potential property value is determined.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 27 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of the above reasons, reversal of the rejection of claim 27 for indefiniteness is respectfully requested.

Claim 28

Separate independent claim 28 recites particular determining, comparing, and adjusting steps which are not considered or addressed in the Final Office Action (see page 4), which instead focuses on the language of the preambles of the claims. Therefore, although not separately addressed in the Final Office Action, the body of claim 28 clearly provides even further meaningful features on measuring steps where the consistency and control processes are performed.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 28 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 29

Claim 29, which depends from claim 28, further clarifies that the process variable is correlated to the interfacial potential property value. The Final Office Action does not provide a specific position on how and why claim 29 fails to comply with 35 U.S.C. § 112, second paragraph.

The Examiner's rejection concerning the term "interfacial potential property" is discussed above and incorporated herein. Claim 29 does not use the term "maintaining." The remaining parts of this claim would be clear and definite to one skilled in the art. This is especially true since the Examiner has not indicated that any other term or phrase in this claim is indefinite and, moreover, since a clear understanding of the claim can be made from reading the claim itself, 35 U.S.C. 112, second paragraph is satisfied.

In view of at least the above, reversal of this rejection is respectfully requested.

2. Rejection of Claims 1-29 Under 35 U.S.C. § 102(b) Over Reszler (U.S. Patent No. 5,974,167)

Claim 1

Claims 1-29 were finally rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 5,974,167 to Reszler.

The Examiner's Position

According to the Final Office Action dated July 17, 2007 (page 5), claims 1-29 are anticipated by Reszler for the following reasons:

In light of the above 35 USC 112 second paragraph issues, the invention is best understood as a method of monitoring the quality of carbon black, a metal oxide or silica particles by measuring a parameter of the particle and comparing the measured parameter to a predetermined standard value.

Reszler teach in column 5 lines 40+ measuring physical parameters, such as particle size, of carbon black, metal oxides and silica particles. Column 4 lines 21+ teach a method of measuring the particle size and comparing the measured size to a predetermined standard value.

The Examiner also added the following remarks in the Final Office Action (pages 5-6) in support of this anticipation rejection:

Applicants traverse the 35 USC 102(b) rejections stating the invention provides quality control and/or quality assurance for a particulate material and also makes it easier for a customer to obtain consistency of their products. These remarks are not commensurate in scope with the pending claims that do not reflect these features.

Applicants state Reszler "... does not relate at all to maintaining at least one interfacial potential property ... within a first target range". The Office maintains Reszler teach in column 5 lines 40+ measuring physical parameters, such as particle size, of carbon black, metal oxides and silica particles. Column 4 lines 21+ teach a method of measuring the particle size and comparing the measured size to a predetermined standard value which has been properly read on the instant claims.

Applicants state "...what ever quality control assurance protocols that Reszler is describing are merely those implemented at the end product level and not upstream particulate production level." Again these remarks are not commensurate in scope with the pending claims that have no limitations to "end product" or "upstream particulate product."

Applicants state Reszler does not teach controlling any process steps. The instant claims are directed to "maintaining" which is not a control step.

Applicants state Reszler does not teach or recognize the problems of particles that are "within spec" but do not have the desired performance. The claims are directed to method of providing product consistency and these remarks are not commensurate in scope with the pending claims.

For the following reasons, the Appellants request review and reversal of this rejection.

The Appellants' Position

The present invention is directed to resolving a problem associated with particulate material production in which materials that are seemingly made "within spec" with respect to one or more measures of morphology, such as particles size, surface area, structure, porosity, etc., nonetheless do not perform consistently as expected in applications. As such, the "within spec" assessment of a particulate material from only a morphological standpoint can represent a "false positive" to some extent. Until now, the industry was not entirely clear why the product would not perform consistently even though the particulate material was within morphological specifications. Efforts to determine the source of such problems only after they emerge in products incorporating the particulate material are inefficient and often both time consuming and expensive. Trial-and-error approaches comparing the effects of adjustments made in the particulate manufacturing process with differences observed in the ultimate product containing the particulate material may resolve the product level problem within a limited context. However, such an approach does not provide a mechanism for intercepting problems at the particulate production level before problems

arise in end products that incorporate the particulate material. The present inventors appreciated that the problem of particulate materials that are "within spec," but perform inconsistently in application, ideally would be addressed as part of a quality control (QC) and/or quality assurance (QA) program implemented at the particulate production level, *before* end-products become involved. Moreover, the present inventors have developed a solution to the problem in this regard, which is reflected in their present claims. The present invention not only provides quality control and/or quality assurance for the particulate material but may also make it easier for a customer to obtain consistency in their end products and any intermediate products containing the particulate material, such as polymer products, elastomeric products, inks, coatings, toners, and the like.

Reszler is not relevant to the subject matter of the claimed invention.

Reszler only relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software.

Reszler, therefore, does not relate whatsoever to maintaining at least one interfacial potential property value of a particulate material and, in fact, does not even relate to maintaining at least one morphological value of a particulate material within a first target range. As described above and as described in the present application, "at least one morphological value" and "at least one interfacial potential property value" are defined and are different from each other, and these properties are relevant to particulate material, such as carbon black. Reszler fails to teach, implicitly or expressly, how to measure and then maintain these specific properties as set forth in the claimed invention.

The Examiner referred to col. 5, lines 40+ of Reszler, which refers to methods and an apparatus for measuring and controlling the quality of the dispersion of filler particles in rubber compounds involving measurements of filler particles in rubber. Indeed, the Examiner's separate

reference to col. 4, lines 21+ of Reszler confirms that whatever quality control or assurance protocols that Reszler is describing are merely those that are implemented at the end-product level, and not upstream at the particulate production level. Reszler particularly teaches measuring the dispersion of filler particles in rubber in which filler is mixed with polymer, then sectioned for image capture and computer analysis, and if a determined dispersion measurement for the sample falls outside a dispersion reference range for allowable particle numbers or sizes, then modifying a mixing parameter or the chemical composition of the rubber product (e.g., col. 4, lines 23-31, 51-58; col. 15, lines 2-5). Clearly, Reszler only describes implementing a different type of quality control at the filled rubber product level. That is not the present invention. As explained in the present application, an important advantage of the present invention is that false “within-spec” problems with respect to the particulate material are intercepted before that material *per se* gets out of the production facility and in the hands of the customer. Reszler, instead, would see and try to address problems too late, after the particulate material has already been supplied to a rubber compounder *and* blended with a rubber. At that point, many additional variables come into play to complicate efforts to resolve the problem.

As can be appreciated, Reszler nowhere suggests controlling any process steps related to the production of the filler material *per se*. Reszler nowhere teaches or suggests any recognition of a problem in which filler particles may have morphological properties that are “within spec” yet perform or behave inconsistently in the filled rubber products. Moreover, Reszler nowhere appreciates the importance of maintaining at least one interfacial potential property value of the filler within a target range, in addition to maintaining at least morphological value of the filler within a target range.

Implementation of quality control at the filled product level, as in Reszler, overlooks the

potential serious problem of particulates made “within spec” which nonetheless perform inconsistently in applications. The present invention, unlike Reszler, can nip any problems with respect to false “within the spec” particulate materials “in the bud.” As demonstrated in the working examples of the present application, morphological values can appear to indicate that a particulate material is within spec, while the added interfacial potential property measurements serve to reveal the particulates that perform inconsistently. However, the method of the present invention provides product consistency by maintaining both at least one morphological value as well as at least one interfacial potential property value of the particulate material. In this way, it has unexpectedly been found that product quality assurance (QA) and quality control (QC) are vastly improved if, along with measurements of morphology, measurements of values that reflect the interfacial potential of the particulate material are also made.

Therefore, Reszler differs from claim 1 by failing to teach or suggest a method of providing product consistency with respect to particulate material, and instead Reszler is focused only on end products.

Reszler also differs from claim 1 by failing to teach or suggest maintaining at least one morphological value of a particulate material within a first target range. As noted above, Reszler instead makes changes in the blending proportions of the filler and rubber, or the chemical composition of the rubber, as the corrective action taken when the filler dispersion falls outside the dispersion reference range parameters.

Reszler also differs from claim 1 by failing to teach or suggest maintaining at least one interfacial potential property value of the particulate material within a second target range. As noted above, Reszler has nothing to say about an interfacial potential parameter of the filler, nor its maintenance.

Reszler also differs from claim 1 by failing to teach or suggest the overall combination of features as recited in present claim 1.

Therefore, in view of at least the above differences that exist between Reszler and present claim 1, it is apparent that Reszler fails to identically disclose claim 1. In the absence of an identical disclosure to present claim 1, Reszler can not anticipate the claim. Further, the Final Office Action has not indicated that the present claims are obvious over Reszler, and, even if such an assertion is made, the above-identified significant differences between Reszler and the present claims would not have been suggested by Reszler.

In view of at least the above, reversal of this rejection is respectfully requested.

The Final Office Action fails to separately and individually address any of claims 2-29 grouped with claim 1 under this rejection. Each of these claims differ from Reszler for at least the same above-discussed reasons applicable to claim 1. Additional patentable differences between these claims and Reszler are discussed below.

Claim 14

Further to claim 1, claim 14 recites that the step of maintaining at least one interfacial potential property value comprises i) determining at least one interfacial property value of the particulate material; and ii) adjusting at least one process variable of a process for producing the particulate material, wherein the adjustment maintains the interfacial potential property value within the second target range.

Reszler, unlike claim 14, makes changes in the blending proportions of the filler *and* rubber, or the chemical composition of the rubber, as the corrective action taken when the filler dispersion falls outside the dispersion reference range parameters. Reszler only describes implementing a different type of quality control at the filled rubber product level. Claim 14 on

appeal recites a unique and fundamentally different method than Reszler's teachings.

Reszler does not identically disclose claim 14 on appeal, nor suggest it.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 15

Further to claim 1, claim 15 further specifies that the interfacial potential property value is determined *during* the process for producing the particulate material.

Reszler only describes implementing a different type of quality control at the filled rubber product level. Reszler fails to identically disclose claim 15 on appeal. Further, Reszler teaches away from claim 15 as Reszler is focused exclusively on examining filled rubbers for pursuing product quality control.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 16

Further to claim 14, claim 16 further specifies that the interfacial potential property value is determined prior to shipping the particulate material to a customer.

Reszler only describes implementing a different type of quality control at the filled rubber product level. Reszler fails to identically disclose claim 16 on appeal. Further, Reszler teaches away from claim 16 as Reszler is focused exclusively on examining filled rubbers for pursuing product quality control.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 21

Further to claim 14, claim 21 further specifies that the interfacial potential property value of the particulate material is determined by an interfacial potential absorptometry method.

Reszler relates to taking a polymer matrix containing filler particles and analyzing the

dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are not relevant to claim 21, which relates to measuring the interfacial potential property value of the particulate material by an interfacial potential absorptometry method.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 24

Further to claim 14, claim 24 further specifies that the interfacial potential property value of the particulate material is determined by a wicking rate method.

Reszler relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are not relevant to claim 24, which relates to measuring the interfacial potential property value of the particulate material by a wicking rate method.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 25

Further to claim 14, claim 25 further specifies that the interfacial potential property value of the particulate material is determined by a yield point method.

Reszler relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are not relevant to claim 25, which relates to measuring the interfacial potential property value of the particulate material by a yield point method.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 26

Further to claim 14, claim 26 further specifies that the interfacial potential property value of the particulate material is determined by an interfacial potential vapor adsorption method.

Reszler relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are not relevant to claim 26, which relates to measuring the interfacial potential property value of the particulate material by an interfacial potential vapor adsorption method.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 27

Further to claim 14, claim 27 further specifies that the interfacial potential property value of the particulate material is determined by an IGC method.

Reszler relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are not relevant to claim 27, which relates to measuring the interfacial potential property value of the particulate material by an IGC method.

In view of at least the above, reversal of this rejection is respectfully requested.

Claim 28

Independent claim 28 recites a particular method of controlling a process for producing a particulate material comprising steps that are not taught nor suggested by Reszler.

In particular, Reszler does not teach or suggest determining at least one morphological value of the particulate material and at least one interfacial potential property value of the particulate material. Reszler, in fact, does not determine any interfacial potential property value for

any material. Nor does Reszler teach or suggest comparing the morphological value and the interfacial property value of the particulate material to a target morphological value and a target interfacial potential property value. Reszler further fails to teach or suggest, if necessary, adjusting at least one process variable for the process.

For at least these reasons, this rejection should be reversed.

Claim 29

Further to claim 28, claim 29 further clarifies that the process variable is correlated to the interfacial potential property value.


Reszler relates to taking a polymer matrix containing filler particles and analyzing the dispersion of the filler particles *in the rubber matrix* using computer imaging and software. The teachings of Reszler are clearly not relevant to claim 29, which relates to the process variable as being correlated to the interfacial potential property value of the particulate material.

In view of at least the above, reversal of this rejection is respectfully requested.

Conclusion

For the reasons set forth above, the appellants submit that the claims presently pending in the above-captioned application meet all of the requirements of patentability. It is therefore respectfully requested that the Honorable Board reverse the Examiner and remand this application for issue.

Respectfully submitted,


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U.S. Patent Application No. 10/649,347
Appeal Brief of January 16, 2008

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(10) Claims Appendix

1. A method of providing product consistency comprising the steps of:
 - a) maintaining at least one morphological value of a particulate material within a first target range and
 - b) maintaining at least one interfacial potential property value of the particulate material within a second target range.
2. The method of claim 1, further comprising the step of maintaining at least one chemical value of the particulate material.
3. The method of claim 2, wherein the chemical value is pH or functional group level.
4. The method of claim 1, wherein the particulate material is carbonaceous.
5. The method of claim 1, wherein the particulate material is carbon black.
6. The method of claim 1, wherein the particulate material is a metal oxide.
7. The method of claim 1, wherein the particulate material is fumed silica.
8. The method of claim 1, wherein the morphological value is surface area, particle size, structure, porosity, or combinations thereof.

9. The method of claim 1, wherein the first target range for the morphological value is within about 10% of the morphological value.

10. The method of claim 1, wherein the second target range for the interfacial potential property value is within about 50% of the interfacial potential property value.

11. The method of claim 1, wherein the step of maintaining at least one morphological value of a particulate material comprises

- i) determining at least one morphological value of the particulate material; and
- ii) adjusting at least one process variable of a process for producing the particulate material, wherein the adjustment maintains the morphological value within the first target range.

12. The method of claim 11, wherein the morphological value is determined during the process for producing the particulate material.

13. The method of claim 11, wherein the morphological value is determined prior to shipping the particulate material to a customer.

14. The method of claim 1, wherein the step of maintaining at least one interfacial potential property value of a particulate material comprises

- i) determining at least one interfacial property value of the particulate material; and
- ii) adjusting at least one process variable of a process for producing the particulate

material, wherein the adjustment maintains the interfacial potential property value within the second target range.

15. The method of claim 14, wherein the interfacial potential property value is determined during the process for producing the particulate material.

16. The method of claim 14, wherein the interfacial potential property value is determined prior to shipping the particulate material to a customer.

17. The method of claim 11, wherein the morphological value is determined by liquid adsorption, vapor adsorption, microscopy, or combinations thereof.

18. The method of claim 11, wherein the morphological value is determined by an adsorption method using iodine, nitrogen, CTAB, DBP, or paraffin oil.

19. The method of claim 11, wherein the particulate material comprises carbonaceous material and wherein the process variable is selected from the group consisting of: combustion stoichiometry, reactor quench length, feedstock composition, primary fuel type, level of downstream additives, and post treatment conditions.

20. The method of claim 11, wherein the particulate material comprises metal oxide and wherein the process variable is selected from the group consisting of: combustion stoichiometry, amount of quench air, feedstock composition, primary fuel type, level of downstream additives,

and post treatment conditions

21. The method of claim 14, wherein the interfacial potential property value is determined by an interfacial potential absorptometry method.

22. The method of claim 21, wherein the interfacial potential absorptometry method uses a liquid other than DBP or paraffin oil.

23. The method of claim 21, wherein the interfacial potential absorptometry method uses water, ethylene glycol, or mixtures thereof.

24. The method of claim 14, wherein the interfacial potential property value is determined by a wicking rate method.

25. The method of claim 14, wherein the interfacial potential property value is determined by a yield point method.

26. The method of claim 14, wherein the interfacial potential property value is determined by an interfacial potential vapor adsorption method.

27. The method of claim 14, wherein the interfacial potential property value is determined by an IGC method.

28. A method of controlling a process for producing a particulate material comprising the steps of:

a) determining at least one morphological value of the particulate material and at least one interfacial potential property value of the particulate material;

b) comparing the morphological value and the interfacial property value of the particulate material to a target morphological value and a target interfacial potential property value; and

c) if necessary, adjusting at least one process variable for the process.

29. The method of claim 28, wherein the process variable is correlated to the interfacial potential property value.

(11) Evidence Appendix

None.

(12) Related Proceedings Appendix

None.